

10/636,007

000308-804/TRWP121US

REMARKS

Claims 1-15 and 31-35 are currently pending in the subject application and are presently under consideration. The specification and claims 1 and 13 have been amended herein. New claims 31-35 have been added to emphasize various novel aspects of the subject invention already recited in the pending claims. Accordingly, these claims do not raise issues requiring further search or effort on behalf of the Examiner. Applicant's representative affirms the election of Group I (claims 1-15) with traverse. Claims 16-30 have, accordingly, been withdrawn. A version of all pending claims is found at pages 5-9.

Applicant's representative acknowledges with appreciation the Examiner's indication that claims 2, 4, 6 and 8-11 would be allowable if recast in independent form to include all of the limitations of the respective base claims and any intervening claims. It is believed such amendments are not necessary in view of the below-noted deficiencies of the cited references *vis a vis* applicant's claimed invention. However, applicant's representative reserves the right to recast these claims at a later date, if necessary.

It is noted that the primary reference (Dyudin (SU 699694)) is a Russian patent and that the Examiner did not provide an English translation with the subject Office Action. Applicant's representative obtained an English translation, which is attached herein as Exhibit A. This translation was utilized in the arguments and comments below. Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Objection of Claims 1 and 13

Claims 1 and 13 stand objected to for minor informalities. The subject claims have been amended herein to cure such informalities. Accordingly, this objection should be withdrawn.

II. Rejection of Claims 1, 3, 5, 7, 12, 13-14 and 15 Under 35 U.S.C. §103(a)

Claims 1, 3, 5, 7, 12, 13-14 and 15 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Dyudin (SU 699694). Withdrawal of this rejection is respectfully requested for at least the following reasons. Dyudin does not teach or suggest all claim limitations set forth in the subject claims.

10/636,007

000308-804/TRWP121US

To reject claims in an application under §103, an examiner must establish a *prima facie* case of obviousness. A *prima facie* case of obviousness is established by a showing of three basic criteria. *First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings.* Second, there must be a reasonable expectation of success. *Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.* See MPEP §706.02(j). The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. See *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991) (emphasis added).

The claimed invention relates to a system that employs a continuously variable optical delay line in connection with a transmission of a signal. In particular, independent claim 1 recites an *optical fiber* that is operative to a reservoir that stores a *reflective fluid* and a second component that facilitates *continuous movement of the reflective fluid from the reservoir to a location within the optical fiber to adjust an effective length, or delay, provided by the optical fiber*, wherein a signal is delayed by routing the signal through the effective length of the optical fiber. Dyudin does not teach or suggest such claimed aspects.

In the Office Action (dated November 11, 2004), the Examiner asserts that Dyudin teaches the second component as claimed in the subject application – a second component that facilitates continuous movement of a reflective fluid from a reservoir to a location within an optical fiber to adjust an effective length, or a delay introduced by the optical fiber. The Examiner supports this contention by stating that Dyudin teaches a controller/regulator 4 that controls the level of immersion of a waveguide, wherein the level determines a delay in a reflected signal. However, Dyudin does not teach or suggest controlling any liquid, let alone a reflective liquid, *within* a waveguide to determine a transmission delay provided by such waveguide. In contrast, Dyudin discloses that an end of a waveguide is connected to a device 4 and positioned within a vessel 5 of liquid, wherein the device 4 regulates the position (degree of immersion) of the waveguide in the liquid, which regulates a delay time provided by the system. Thus, Dyudin teaches regulating a delay time through a degree of immersion of a waveguide within a liquid, not by controlling a reflective liquid *within* a waveguide as recited in the subject

10/636,007

000308-804/TRWP12ES

claim. Moreover, the language of the reference does not teach and/or support utilization of a *reflective fluid* and fails to suggest the use of a *reflective fluid* because the reflection taught in Dyudin is not caused by any reflective characteristic or property of the liquid. Rather, the liquid facilitates changing an elastomechanical property of the waveguide. More precisely, the liquid reduces the elasticity of the waveguide, producing a boundary material in the waveguide at the gas-liquid interface. Hence, the waveguide, not the liquid, reflects the signal.

The Examiner concedes that Dyudin does not teach or suggest an *optical fiber* that accepts single mode and multimode optical signals, an optical signal (e.g., a converted RF signal), a reflective fluid within the optical fiber selected to achieve a refractive index mismatch, and a reflective fluid that provides low loss or wavelength band-limiting, as recited in the subject claims, but contends that the foregoing deficiencies were well known in the art at the time of the invention and that it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Dyudin in view of what was well-known. In particular, the Examiner contends that the waveguide taught by Dyudin guides ultrasonic/acoustic signals, which indicates the waveguide is hollow since it guides sound. However, Dyudin is silent regarding a hollow waveguide and expressly only contemplates "solid waveguides in the form [of] rectangular blocks as acoustic lines" and strip waveguides, "where metal strips serve as acoustic lines." Moreover, it is well-known that mechanical waves such as ultrasonic waves generally utilize solid waveguides made of elastic material. In addition, and as discussed *supra*, Dyudin does not teach or suggest a reflective fluid or utilizing such fluid within a fiber to determine a signal delay. Thus, Dyudin cannot teach or suggest selecting a reflective fluid to achieve a refractive index mismatch, to provide low loss, or to band limit.

III. New Claims 31-35

New claims 31-35 have been added for consideration and include limitations similar to one or more claims filed with the application; and, thus, do not raise issues requiring further search or effort on behalf of the Examiner. These claims further emphasize various novel aspects of the subject invention.

10/636,007

000308-804/TRWP121US

Conclusion

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063[TRWP121US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

AMIN & TUROCY, LLP



Himanshu S. Amin
Reg. No. 40,894

AMIN & TUROCY, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731